

REMARKS

Claims 34, 36, 37, 42, 44 and 45 are pending in the present application. In the Office Action dated November 13, 2006, claim 34 was rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,773,561 to Sachdev et al. ("Sachdev"). Claims 36, 37, 44, and 45 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sachdev in view of U.S. Patent No. 5,086,018 to Conru et al. ("Conru"). Claim 42 was rejected under 35 U.S.C. 103(a) as being unpatentable over Sachdev, modified by Conru as applied to claim 36, and in further view of U.S. Patent No. 6,266,249 to Desai et al. ("Desai").

Discussion of the Disclosed Embodiment

The disclosed embodiments of the invention will now be discussed in comparison to the applied references. Of course, the discussion of the disclosed embodiments, and the discussion of the differences between the disclosed embodiments and the subject matter described in the applied references, do not define the scope or interpretation of any of the claims. Instead, such discussed differences merely help the Examiner appreciate important claim distinctions discussed thereafter.

In one embodiment, the disclosed invention includes a semiconductor die secured to a substrate, such as a lead frame, by means of adhesive tape. The adhesive tape may be a double sided adhesive tape cured by heating. In one embodiment, the die is adhered to the substrate with the adhesive tape and subject to elevated temperature and isostatic pressure. The temperature and pressure may be applied in an autoclave.

One advantage of curing under pressure is that the boiling point of the solvents and moisture within the adhesive tape is raised. As a result, rapid vaporization of the solvents and moisture is reduced thereby reducing the number of in the adhesive that can result in failure in the bond between the die and substrate.

Discussion of the Cited Reference

The cited references have a completely different principle of operation than the disclosed embodiment. Sachdev teaches the use of a "new adhesive comprising a vinyl containing siloxane-containing polyimide." Abstract Sachdev teaches that protective lids may be connected to a substrate using the disclosed adhesive by applying *clamp* pressure and heating the combined lid, substrate and adhesive. Col. 10, lns. 25-26. Sachdev does not teach or suggest the

use of isostatic pressure as is used in the disclosed embodiment. Sachdev relies only on the properties of the specialized adhesive to reduce voids and does not provide the advantages of an adhesive cured as disclosed by Applicant. Conru and Desai likewise fail to disclose such a method.

Discussion of The Claims

With respect to claim 34, Applicant asserts that the cited references, whether alone or in combination fail to teach all of the limitations of claim 34. In particular, they fail to show, in combination with the other limitations of claim 34, “a tri-layer die attach tape comprising adhesive die attach material disposed between the semiconductor die and the substrate . . . a die attach bondline at the interface between the adhesive die attach material and the semiconductor die *being substantially void free and outgassed under isostatic pressure effective to substantially raise a boiling point of a solvent of the adhesive die attach material.*” As noted above, Sachdev discloses only the application of clamp pressure that is not effective to raise a boiling point of a solvent.

Claims 36 and 37 are dependent on claim 34 and are therefore allowable for at least the reasons discussed hereinabove.

With respect to claim 42, Applicant asserts that the cited references, whether alone or in combination fail to teach all of the limitations of claim 42. In particular, they fail to show, in combination with the other limitations of claim 42, “a pressure and heat cured tri-layer die attach tape cured at an elevated temperature under isostatic pressure effective to substantially raise a boiling point of a solvent of the tri-layer die attach tape.” The adhesive of Sachdev is cured only by the application of clamp pressure.

Claims 44, 45, and 50-52 are dependent on allowable claim 42 and are therefore allowable for at least the reasons discussed hereinabove.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a timely Notice of Allowance are earnestly solicited.

Respectfully submitted,

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Enclosures:

Postcard

Fee Transmittal Sheet (+ copy)

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